## INDEX TO VOLUME IV.

GEOMETRY OF TWO DIMENSIONS.	
Singular application of geometry of three dimensions to a plane problem.	age
0 0 .	65
On the different published demonstrations of Pascal's hexagramme.	
	82
GEOMETRY OF THREE DIMENSIONS.	
On the theorems in space analogous to those of Pascal and Brianchon	
in a plane. By Thomas Weddle	26
Abstract of a memoir by Dr. Hesse on the construction of the surface	
of the second order which passes through nine given points. By	
Arthur Cayley	44
On a class of curves on the hyperboloid of one sheet connected with	00
the generatrices of the surface. By Richard Townsend. Geometrical demonstration of some properties of geodesic lines. By	66
Geometrical demonstration of some properties of geodesic lines. By  Andrew S. Hart	80
On symbolical geometry—continued. By Sir William Rowan Hamilton	00
84, 1	105
On the triple tangent planes of surfaces of the third order. By Arthur	
	118
On the relation between different curves and cones connected with	
	139
On the focal generation of surfaces of the second order. By the Rev. William A. Willock	
On the cone circumscribing a surface of the mth order. By the Rev.	149
	187
On geodesic lines traced on a surface of the second degree. By	
	191
On the problem to determine in magnitude, position, and figure, the	
surface of the second order which passes through nine given points.	
-,	241
On the triple tangent planes to a surface of the third order. By the Rev. George Salmon	252
Rev. George Salmon	202
ALGEBRA AND TRIGONOMETRY.	
On the simultaneous transformation of two homogeneous functions of the second order. By Arthur Cayley	47
On a solution of a cubic equation, By James Cockle	95
On the order of certain systems of algebraical equations. By Arthur	00
	132
	161
On a system of equations connected with Malfatti's problem, and on	
another algebraical system. By Arthur Cayley .	270

## DIFFERENTIAL AND INTEGRAL CALCULUS. On a general theorem of definite integration. By George Boole On differentiation with fractional indices, and on general differentiation. Part II. By the Rev. William Center 21 On a point in the solution of linear differential equations. By Augustus 137 De Morgan On the symbolical value of the integral $\int x^{-1}dx$ . By the Rev. William 261 Singular application of geometry of three dimensions to a plane problem. By G. W. Hearn 265 Comparison of expressions for circular and elliptic functions in continued fractions. By C. J. Malmstén . 284 Sur l'intégration des equations différentielles linéaires. Par le même ib. MECHANICS. On the attraction of an ellipsoid. By Arthur Cayley-Part I. On Legendre's solution of the problem of the attraction of an ellipsoid on an external point 50 Part II. On a formula for the transformation of certain multiple integrals 57 Remarks on the deviation of falling bodies to the east and to the south of the perpendicular; and corrections of a previously published 96 paper on the same subject On attractions, and on Clairaut's theorem. By G. G. Stokes . 194 Note on the motion of rotation of a solid of revolution. By Arthur Cayley 268 HYDROSTATICS AND HYDRODYNAMICS. Notes on hydrodynamics-V. On the vis-viva of a liquid in motion. By William Thomson 90 VI. On waves. By G. G. Stokes 219 On the equilibrium of a floating body. By Richard Townsend 169 LIGHT. On the perfect blackness of the central spot in Newton's rings, and on the verification of Fresnel's formulæ for the intensities of reflected 1 and refracted rays. By G. G. Stokes . ELECTRICITY. On the mathematical theory of electricity in equilibrium-V. Effects of electrical influence on internal spherical, and on 276 plane, conducting surfaces. By William Thomson MISCELLANEOUS. Mathematical notes 95, 284

Notes and other passages enclosed in brackets [], are insertions made by the Editor.

The date of actual publication of any article, or portion of an article, may be found by referring to the first page of the sheet in which it is contained. The Author's private date is frequently given at the end of an article.—Ep.